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STATUS AND DISTRIBUTION OF THE GOLDEN-WINGED WARBLER IN TENNESSEE

(Photo taken by Dr. David Buehler in the Sundquist WMA, Tennessee, summer 2003.)

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The Golden-winged Warbler *(Vermivora chrysoptera)* is a species of high conservation concern in eastern North America. Habitat loss and hybridization with the closely related Blue-winged Warbler *(Vermivora pinus)* are thought to be contributing to their declining population (Confer 1992). This paper reports the results of the Tennessee Golden-winged Warbler Atlas Project, initiated by Cornell University's Laboratory of Ornithology, to identify important population sites, determine the range of acceptable habitats, map the frequency of hybridization with Blue-winged Warblers, and identify key sites for acquisition, protection or management. A total of 59 sites and 203 territorial male Golden-winged Warblers were found in two disjunct physiographic provinces: the Northern Cumberland Plateau and the northern part of the Southern Blue Ridge. All Golden-winged Warblers in Tennessee were found in human-altered habitats, with more than half located on abandoned contour coal mining strip benches in the mountains of the Cumberland Plateau. Sites above 850 meters (2,800 ft) in both the Southern Blue Ridge and the Northern Cumberland Plateau were found to be free of Blue-winged Warblers and may represent "safe havens" for the Golden-winged Warbler. Active management is recommended to maintain and improve existing mine sites in the mountains of the Cumberland Plateau. In the Southern Blue Ridge, additional high elevation habitat needs to be created especially in areas that would connect the Tennessee, North Carolina, and Georgia populations of Golden-winged Warblers.

INTRODUCTION

Golden-winged Warblers, like many species dependent on early successional habitat, are experiencing steep declines in their breeding population over most of their range and have disappeared from some previously occupied regions (Confer 1992, Hunter et al. 2001). Partners-in-Flight lists the Golden-winged Warbler as among the neotropical migrants of highest conservation concern, the U.S. Fish and Wildlife Service (USFWS) includes it on the National List of Birds of Conservation Concern (USFWS 2002) and the state of Tennessee recently added it to their list of species "In Need of Management" (TWRC 2000). The USFWS has initiated a Status Assessment to evaluate whether listing under the Endangered Species Act is warranted. In Tennessee, the Golden-winged Warbler has declined in both population numbers and nesting range in recent decades and is presently one of the least common warblers nesting in the state (Nicholson 1997a). Quantitative information on this decline is limited because this species has been reported from few USFWS Breeding Bird Survey (BBS) routes. Only seven out of 42 routes in Tennessee have ever reported golden-wings and no more than three routes have reported this species between 1980 and 2002.

Breeding habitat for the Golden-winged Warbler includes many types of early successional habitat, but all share a common vegetative structure: patches of herbs

and shrubs with scattered trees and a hardwood forested edge (Confer and Knapp 1981, Confer 1992, Klaus and Buehler 2001). Examples of upland sites are shrubby fields that follow farmland abandonment, logging, fire, and abandoned surface mines. Golden-winged Warblers are also known to occupy young commercial pine plantations that still have open areas between the trees and wetter habitats such as alder swamps and beaver meadows. In dry areas the herbaceous vegetation often includes goldenrod (*Solidago*) and shrubs such as *Viburnum*, blackberry (*Rubus*) and multiflora rose (*Rosa multiflora*) (Confer 1992, Canterbury et. al. 1993). The pre-European status of the Golden-winged Warbler in Tennessee is not known but disturbance regimes including wildfires and fires set by indigenous Americans, storms, large grazing herbivores, and beavers likely created a much more open hardwood forest than we see today with patches of scrub/shrub habitat supporting many of our currently declining early successional species (Nicholson 1997a, Hunter et al. 2001). In recent times the abandonment of farmlands has provided most of the Golden-winged Warbler breeding habitat range wide (Confer 1992). In Tennessee, habitat for the golden-wings probably peaked in the first half of the 20th century when much farmland was abandoned in the Southern Blue Ridge and on the Cumberland Plateau (Nicholson 1997a). The loss of this habitat to advancing succession and reforestation is thought to be one of the primary causes for the decline of the Golden-winged Warbler. Another important suspected cause is hybridization with the closely related Blue-winged Warbler as it invades the range of the golden-wing (Gill 1980, Confer 1992, Canterbury et. al. 1993).

Golden-winged Warblers, Blue-winged Warblers, and their hybrids occupy similar habitat but blue-wings will accept sites with more advanced successional vegetation (Confer and Knapp 1981, Canterbury et. al. 1993). Historically these two species were largely allopatric but human-induced land use changes have allowed the blue-wings to expand into the range of the golden-wings. When these species interbreed they produce phenotypically distinct fertile hybrids called "Brewster's" and Lawrence's" Warblers. The arrival of Blue-winged Warblers has been correlated with the extirpation of golden-wings in study areas in New York and West Virginia (Gill 1980, Confer 1992, Canterbury et. al. 1993).

The Tennessee Breeding Bird Atlas (BBA) found Golden-winged Warblers in two disjunct regions of Tennessee: the Northern Cumberland Plateau and the Southern Blue Ridge physiographic provinces. Blue-winged Warblers were most abundant in the middle of the state with very scattered populations extending to east Tennessee. BBS data indicate that blue-wings are declining statewide but data are insufficient to detect regional trends within the state. Three hybrids were reported during the BBA but it is interesting to note that the first hybrid was not reported in Tennessee until the 1970s (Nicholson 1997b).

In 2000, Cornell University Laboratory of Ornithology initiated the Golden-winged Warbler Atlas Project to gather the information needed to develop a conservation strategy for this species. This study engaged volunteer birders and professional biologists to survey and conduct point counts at known and potential breeding sites of Golden-winged Warblers across the entire breeding range (K.

Rosenberg *pers. comm.*). The results will be used to: identify important population sites, determine the status and the range of acceptable habitats of the Golden-winged Warbler in each state and province, identify key sites for acquisition, protection or management, map the frequency of hybridization with Blue-winged Warblers, and locate "safe-haven" sites where hybridization is rare. This paper reports the results from the Tennessee portion of the Atlas Project with recommendations for management.

METHODS

Participants conducted two types of surveys: a Population Survey and a Hybrid Index. The Population survey consisted of visiting previously known or potential Golden-winged Warbler breeding sites and estimating the total population of Golden-winged Warblers, Blue-winged Warblers, and their hybrids on one or more visits. Potential breeding sites were defined as patches of early successional habitat >1 hectare in size, dominated by unmowed herbaceous vegetation with patches of shrubs and including some forested edge. Sites could include some taller trees, especially along edges, but less than 10% forest cover. Participants located potential sites to survey from 1:24,000 U.S. Geological Survey quad maps, Digital Ortho Quarter Quad aerial photographs or they visited known Golden-winged Warblers breeding sites. Only sites with appropriate vegetative structure were included in the survey and participants were encouraged to cover a broad range of potentially suitable shrubby habitat types including abandoned farms or pastures, clearcuts, commercially planted conifers, utility rights-of-way and abandoned mine sites. Visual confirmation was required because Golden-winged and Blue-winged Warblers can sing each other's songs and hybrids can sing either or perhaps both of the parental song types. Coordinates were taken for each site, along with elevation, patch size and habitat type using the classification below.

AF Abandoned farm: Old-field or pasture with > 50% herbaceous cover and patches of shrubs $\geq$ 1 meter tall.

CC Clearcut: Stumps and/or growth of saplings from stumps visible and a shrub layer $\geq$ 1 meter tall.

CP Commercial Pine: pine plantation or Christmas tree farm with trees 1 to 2.5 meters tall.

SHF Shrubby field: Abandoned farmland or pasture with < 50% herbaceous cover and patches of woody stems $\leq$ 6 meters tall.

SM Abandoned strip mine.

UT Utility right-of-way: Gas pipeline or electrical transmission line with shrub layer $\geq$ 1 meter tall.

The Hybrid Index consisted of twenty 10-minute point counts per Tennessee DeLorme Atlas page in the Northern Cumberland Plateau and Southern Blue Ridge physiographic provinces in known and potential Golden-winged Warbler habitat. During the point count a tape of Golden-winged and Blue-winged Warbler Type

I and Type II songs was played. The surveys were spaced at least a quarter mile apart, and evenly distributed in all four quadrants of the atlas page. Visual confirmation of all Golden-winged, Blue-winged, and hybrid warblers was required. An additional 50 counts were conducted in 10 randomly selected quadrants in the Southern Ridge and Valley physiographic province to confirm the status of Golden-winged and Blue-winged Warblers there (Figure 1). All surveys were conducted between 28 April and 12 June 2001 and 2002 from a half hour before dawn until three hours after sunrise.

For analysis, the Northern Cumberland Plateau region was divided into the Cumberland Mountains including sites in Anderson, Campbell, Claiborne and Scott counties above 500 meters (1,640 feet) and the Lower Cumberland Plateau. The Southern Blue Ridge was analyzed as a single region and the Southern Ridge and Valley region was excluded from the analysis because no Golden-winged, Blue-winged or hybrid warblers were detected.

Golden-winged Warbler preference for specific habitat types was evaluated using a X^2 test (Samuels and Witmer 1999) to see if any habitat type was occupied more often by Golden-winged Warblers than would be expected by chance. The analysis combined data from the Lower Cumberland Plateau, Cumberland Mountains, and the Southern Blue Ridge because of the relatively small number of samples and because some habitat types only occurred in some regions.

A One-way Analysis of Variance (ANOVA) was run to test for differences in elevation of sites occupied by Golden-winged, Blue-winged, and hybrid warblers. Following a finding of significant differences, a Bonferroni multiple comparison procedure was run to see which groups differed.

RESULTS

Golden-winged Warblers occupied abandoned strip mine sites more often and clearcuts less often than would be expected by chance ($X^2 = 46.22$, $p < 0.001$). Thirty-six of 59 sites occupied by golden-wings were on abandoned strip mines when 14 would be expected if golden-wings were selecting habitat in proportion to early successional habitats surveyed. Furthermore, only six of 50 clearcuts surveyed were occupied when 16 would have been expected (Table 1).

Significant differences were found in the elevation of occupied sites across phenotypes ($F = 21.05$, $p < 0.0001$). Blue-winged Warblers occupied sites significantly lower than the mean elevation of sites occupied by Golden-winged Warblers and hybrids ($p < 0.05$). However, the mean elevation of sites occupied by golden-wings and hybrids was not different. No difference was found between the mean elevation of sites occupied by Golden-winged Warblers alone and sites where golden-wings shared a site with at least one Blue-winged Warbler or one hybrid ($t = 0.5322$, $p = 0.596$) (Figure 2).

Lower Cumberland Plateau

Large amounts of early successional habitat were found in this region, but only eight out of 89 sites surveyed were occupied by a total of 11 singing male Golden-

winged Warblers (Figure 1). Five sites were occupied by a single singing male, and the other three had two males each. A total of 21 Blue-winged Warblers, the largest number for any region (Figure 3), were found in 16 sites, and a total of four male Brewster's hybrids were detected in four sites. Half of the Golden-winged Warbler sites were shared with at least one Blue-wing or Brewster's hybrid (Figure 4, See Appendix). All of the sites surveyed in this region were on private land.

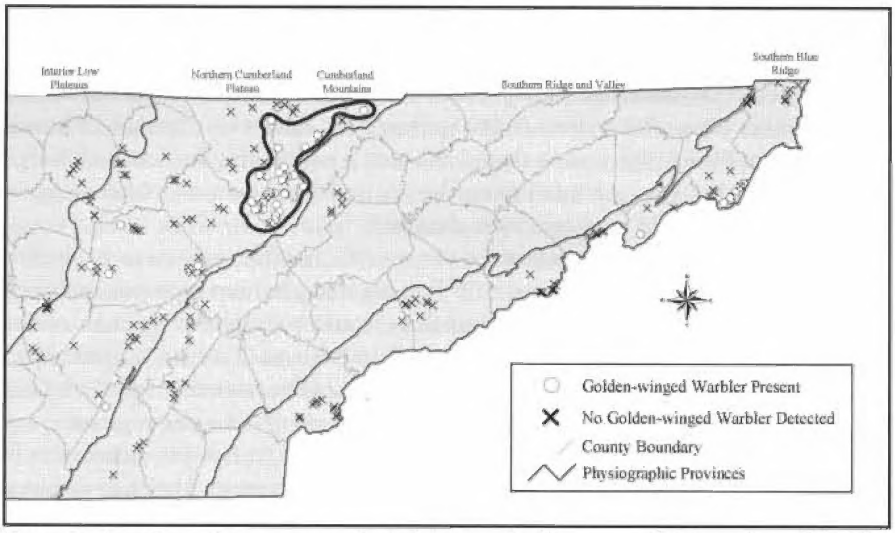

Figure 1. Locations of surveys conducted during the Tennessee Golden-winged Warbler Atlas Project in May 2001 and 2002.

Cumberland Mountains

Golden-winged Warblers were more abundant in the Cumberland Mountains than in any other physiographic province (Figure 3). Of the 47 sites surveyed, 40 were occupied by a total of 139 singing males (Figure 1, Table 2). Fourteen of the sites had a single Golden-winged Warbler, and the largest site total was 12. Five Blue-winged Warblers shared five of the golden-wing sites, and 10 hybrids (nine Brewster's and one Lawrence's type) shared eight Golden-winged Warbler sites (Figure 5). None of the Blue-winged Warblers and only one of the hybrids were found above 850 m (2,800 ft) (See Appendix).

Abandoned strip mine sites represented 83% of the early successional habitat surveyed in this region and were occupied by 94% of the Golden-winged Warblers in the Cumberland Mountains (Table 2). The surface ownership of these sites includes public land (Royal Blue Wildlife Management Area, eight sites), quasi-public land (Sundquist Wildlife Management Area, 18 sites) and private land (nine sites). The Sundquist Wildlife Management Area is jointly owned by a timber management company, a mineral rights owner, and the Tennessee Wildlife Resources Agency.

Southern Blue Ridge

Of the 45 sites surveyed in this region, 11 were occupied by a total of 53 singing Golden-winged Warbler males (Figure 1, Table 1), all limited to northeast Tennessee and all above 850 m (2,800 ft). Five of the sites had a single Golden-winged Warbler and one site, Hampton Creek Cove State Natural Area, had 25 individuals and represents the largest single Golden-winged Warbler site in the state (Trently 2002). Golden-winged Warblers were not found in the Great Smoky Mountains National Park or in the southern districts of Cherokee National Forest. No Blue-winged Warblers were detected in the region, but four Brewster's hybrids were found (Figures 3 and 6). One hybrid shared the Hampton Creek Cove site, and three other hybrids were located 7.5 km north of the Cove site (See Appendix). The two largest populations, representing 60% of the Golden-winged Warblers found in this region, are on publicly owned land

DISCUSSION

Status and Distribution

Lower Cumberland Plateau

The Lower Cumberland Plateau region had the highest number of Blue-winged Warblers and the lowest number of Golden-winged Warblers of any region in Tennessee (Table 2). This region also had more early successional sites than any other region and the highest percentage of sites unoccupied by either Golden-winged, Blue-winged or hybrid warblers. Of the 89 sites surveyed with appropriate vegetative structure, only 25% were occupied by one of these phenotypes, and Golden-winged Warblers were found occupying only 9% of the sites. All eight of these golden-wing sites were shared with at least one Blue-winged Warbler or hybrid (Table 2, Appendix).

Clearcuts and pine plantations were abundant in this region, but many were not included in this survey because they lacked appropriate vegetative structure. Most clearcuts lacked an herbaceous component and many pine plantations lacked shrubs. Confer (1992) listed clearcuts and young pine plantations as potential Golden-winged Warbler habitat and Nicholson (1997a) suggested that the creation of pine plantations in the Cumberlands might partially offset the loss of abandoned farmland as potential habitat. Alsop (1974) reported finding five singing male Golden-winged Warblers in one section of an extensive pine plantation in Cumberland County and considered them a common summer resident in the area. If clearcuts and pine plantations were important habitats for this species in the past, they no longer appear to be. This study found only three of 35 clearcuts and three of 18 pine plantations with vegetative structure sufficient to be included in this survey to be occupied by a total of only nine Golden-winged Warbler males (Table 2). Some of these occupied sites were very large, in excess of 500 ha, and the low density of Golden-winged Warblers may be a result of the large interior spaces providing little of the hardwood edge, required by golden-wings, relative to their size (See Appendix).

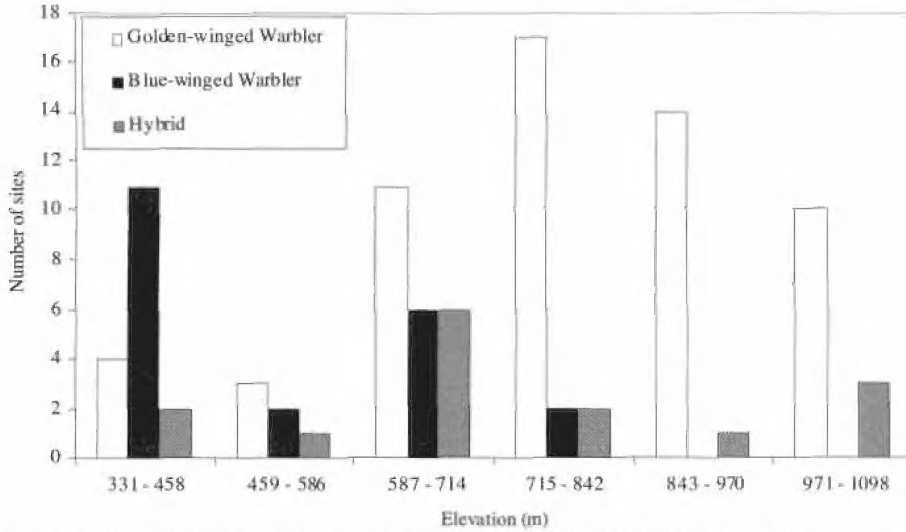

Figure 2. Elevation of Golden-winged, Blue-winged, and Hybrid Warbler sites.

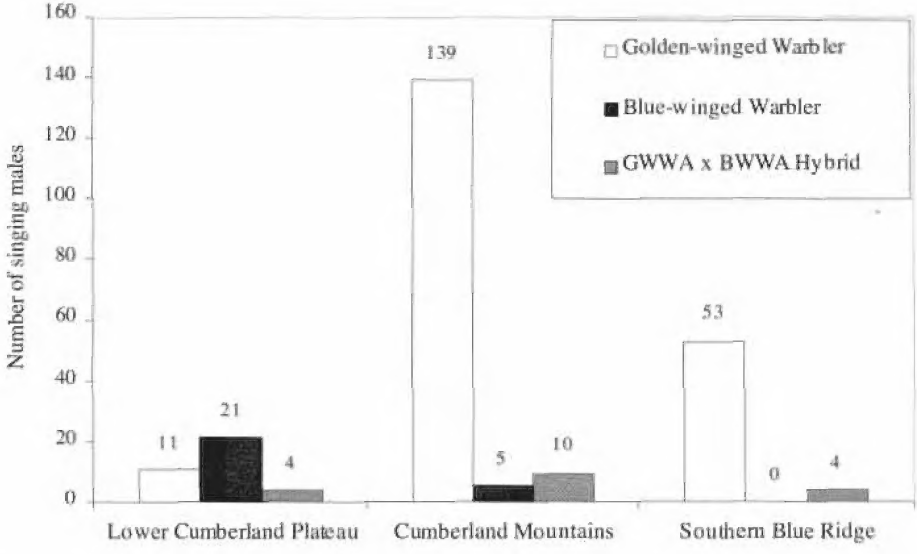

Figure 3. Distribution of Golden-winged, Blue-winged and hybrid Warblers in Tennessee.

Figure 4. Locations of Golden-winged, Blue-winged, and hybrid warblers found on the Lower Cumberland Plateau and during the Tennessee Golden-winged Warbler Atlas Project in May 2001 and 2002.

Figure 5. Locations of Golden-winged, Blue-winged, and hybrid warblers found in the Cumberland Mountains during the Tennessee Golden-winged Warbler Atlas Project in May 2001 and 2002.

Figure 6. Locations of Golden-winged, Blue-winged, and hybrid warblers found in the Southern Blue Ridge during the Tennessee Golden-winged Warbler Atlas Project in May 2001 and 2002.

Breeding Bird Survey data are insufficient to say with any certainty that Golden-winged Warblers have declined or that Blue-winged Warblers have increased in the Lower Cumberland Plateau region. However, BBS data suggest a declining trend for the Golden-winged Warbler, and data collected for the Breeding Bird Atlas suggest a slight increase in numbers of Blue-winged Warblers in this region (Nicholson 1997c). The Lower Cumberland Plateau is the only region in the state where Blue-winged Warblers outnumbered Golden-winged Warblers, yet the numbers for each are small and the amount of unoccupied habitat is great (Table 2). If Blue-winged Warblers are replacing Golden-winged Warblers in this area as described by Gill (1980) in the northeastern United States, then a larger population of Blue-winged Warblers and hybrids, and less unoccupied habitat would be expected.

Cumberland Mountains

This is the only region in the state where recent human activity has created significant amounts of early successional habitat attractive to Golden-winged Warblers. Abandoned surface coal mine sites provided habitat for 65% of the Golden-winged Warblers statewide, and this habitat type was used significantly more often than any other type of early successional habitat in the state. Surface mining became an important method of coal extraction in the 1960s and continues to the present. However, not all previously mined sites are equally attractive to Golden-winged Warblers. Early surface mines were narrow benches, generally < 100 m wide, following a coal seam along the contour of a mountain and were often abandoned with little or no reclamation. Some of these sites were re-mined after the Surface Mine Control and Reclamation Act of 1977, revegetated with fescue (*Fescue arundinacea*) and black locust (*Robinia pseudoacacia*), and quickly invaded by blackberry. These are the sites that provide most of the Golden-winged Warbler habitat in the region. Newer mine sites consist of much wider contour

Table 1. Chi-square analysis of possible habitat preference by Golden-winged Warblers (GWWA).

		Sites occupied by GWWA		
Habitat	**# Sites sampled**	**Observed**	**Expected**	**Chi-square [1]**
Abandoned farm	18	2	5.9	2.5
Shrubby field	37	8	12.1	1.4
Clearcut	50	6	16.3	6.5
Commercial pine	23	5	7.5	0.8
Strip mine	43	36	14.0	34.5
Utility right-of-way	10	2	3.3	0.5
Total	181	59	—	46.2 *

[1] Chi-square statistic: (observed - expected)^2 / expected

* = Significant at alpha = 0.05

Table 2. Golden-winged (GW), Blue-winged (BW), and hybrid (Hy) Warbler habitats surveyed and individuals detected, 2001-2002.

Habitat Type	Total sites surveyed	Sites with GW	Sites with GW, BW or Hy	Total individuals GW	BW	Hybrid
Lower Cumberland Plateau						
Abandoned farm	5	0	0	0	0	0
Shrubby field	24	1	7	1	7	2
Clearcut	35	3	8	4	8	0
CP-pine plantation	18	3	5	5	5	2
Strip mine	4	1	2	1	1	0
Utility right-of-way	3	0	0	0	0	0
Total	89	8	22	11	21	4
Cumberland Mountains						
Abandoned farm	0	0	0	0	0	0
Shrubby field	1	1	1	1	0	0
Clearcut	6	3	3	3	0	0
CP-pine plantation	0	0	0	0	0	0
Strip mine	39	35	36	131	5	10
Utility right-of-way	1	1	1	4	0	0
Total	47	40	41	139	5	10
Southern Blue Ridge						
Abandoned farm	13	2	2	8	0	0
Shrubby field	12	6	7	37	0	2
Clearcut	9	0	0	0	0	0
CP-Xmas tree farm	5	2	2	4	0	2
Strip mine	0	0	0	0	0	0
Utility right-of-way	6	1	1	4	0	0
Total	45	11	12	53	0	4
Statewide						
Abandoned farm	18	2	2	8	0	0
Shrubby field	37	8	15	39	7	2
Clearcut	50	6	11	7	8	0
CP-pine plantation	18	3	5	5	5	2
CP-Xmas tree farm	5	2	2	4	0	2
Strip mine	43	36	38	132	6	10
Utility right-of-way	10	2	2	8	0	0
Total	181	59	75	203	26	18

benches or large area-mines, many over 200 m in width and over 50 hectares in area. These sites are generally revegetated with a dense seeding of fescue, which inhibits the establishment of shrubs and saplings (Burger 2002). Some sites have remained a fescue "monoculture" for more than seven years (T. Ettel *pers. comm.*). These sites provide little Golden-winged Warbler habitat both because of the lack of appropriate vegetative structure and the lack of the required hardwood edge in the large interior space.

Timber harvest in the Cumberland Mountains has not been an important activity in the past decade. Only six clearcut sites were encountered in this region, and three of them were occupied by a single singing male Golden-winged Warbler (Table 2). Each of these clearcuts was dense with sprouting hardwoods, and the singing males were all found near a disturbed open area as described by Klaus and Buehler (2001).

While five Blue-winged Warblers and ten hybrids were found in this region, all but one hybrid were found below 850 m (2,800 ft) (Appendix 1). This study indicates that the higher elevation sites in the Cumberland Mountains may provide a safe haven for Golden-winged Warblers away from possible hybridization with Blue-winged Warblers, as suggested by Hunter et al. (2001) for the Southern Appalachians.

Southern Blue Ridge

Finding early successional habitat with appropriate vegetative structure was more difficult in this region than any other. Of the 45 sites surveyed along the length of the Southern Blue Ridge, Golden-winged Warblers occupied only 11 sites, and all but one of these sites were located in Carter County in northeast Tennessee. Stupka (1963) considered Golden-winged Warblers to be fairly common at middle elevations in the Great Smoky Mountains National Park, and recently they were found in the Tellico Ranger District of the Cherokee National Forest (Klaus and Buehler 2001). No appropriate habitat was found in either of these areas, and little early successional habitat of any kind was found south of Unicoi County. The loss of habitat to reforestation alone may not completely explain the decline of this species in the region because Golden-winged Warblers occupied only 24% of the early successional sites surveyed. If, as Confer and Knapp (1981) suggest, golden-wings tend to form loose breeding colonies, then a lack of habitat patches in sufficient number, size, and proximity to one another may be at least a partial explanation for many of the unoccupied sites. The greatest distance between the ten Carter County sites found in this study was less than 3.5 km (Figure 6) and is suggestive of just such a loose breeding association. Current management in the Great Smoky Mountains National Park, the Tellico Ranger District, and on public lands throughout the Southern Blue Ridge is creating very little early successional habitat and may explain why Golden-winged Warblers have been largely extirpated from the Southern Blue Ridge.

Four Brewster's hybrids were found sharing two Golden-winged Warbler sites, but no Blue-winged Warblers were detected in this region. This suggests the

hybrids may have been produced in a region of overlap and short-stopped their migration when they found appropriate habitat. However they arrived, they do not appear to be increasing rapidly. The first Brewster's was reported in Unicoi Co. in 1975 (Nicholson 1997b) and a single hybrid has been reported at Hampton Creek Cove, in Carter Co., from 1996 through 2002 (Wilson 1998, Trently 2002). All of the golden-winged sites in this region were above 850 m (2800 ft) and this, again, supports the idea that high elevation sites provide safe havens free from contact with Blue-winged Warblers (Hunter et al. 2001).

MANAGEMENT RECOMMENDATIONS

Lower Cumberland Plateau

The outbreak of the southern pine bark beetle in the early 2000s resulted in the clearcutting and replanting of thousands of hectares of pine plantations in this region. Unfortunately, this study found few Golden-winged Warblers occupying pine plantations, so although these new plantations will provide an enormous amount of early successional habitat in the next few years, they are unlikely to result in much additional breeding habitat for golden-wings.

The Lower Cumberland Plateau, more than any other region in the state, appears to have large amounts of suitable unoccupied Golden-winged Warbler breeding habitat. Whether this habitat is truly unoccupied or somehow unsuitable needs further study. However, given the low numbers of Golden-winged Warblers and the relatively high percentage of Blue-winged Warblers in the Lower Cumberland Plateau, research and conservation efforts should be focused on improving and expanding habitat in the higher elevations of the Cumberland Mountains and the Southern Blue Ridge.

Cumberland Mountains

Abandoned strip mines in this region provided most of the early successional habitat occupied by Golden-winged Warblers in Tennessee. Maintaining and improving these sites, especially above 850 m, needs to be given a high priority. Golden-wings have been known to occupy abandoned strip mine sites for more than a decade (Nicholson 1997a), but monitoring will be needed to determine when succession makes these sites no longer suitable breeding habitat. Mechanical removal of woody vegetation and/or controlled burning will be needed to return these sites to an early successional state. In addition, restoration techniques need to be developed and implemented to facilitate succession on more recently reclaimed area-mines and contour mine sites that were densely planted with fescue. Confer (1992) suggests that Golden-winged Warblers will accept a dense row of trees and shrubs along a fence line as the "forested edge" they require. Burger and Zipper (2001) have had some success planting hardwoods on reclaimed mine sites, and if strips of hardwood trees and shrubs can be established across large reclaimed area-mine sites, then hundreds of hectares of new Golden-winged Warbler habitat could potentially be created in this region.

While abandoned strip mines are important breeding habitat for Golden-winged Warblers in Tennessee, it would be inappropriate to justify new surface mining or the use of grasses and herbs to revegetate new mine sites on the grounds that it would create additional Golden-winged Warbler habitat. The rehabilitation of existing mine sites has the potential of providing habitat for several hundred additional pairs of Golden-winged Warblers in Tennessee, and this should be attempted first. It is important to note that the mineral rights underlying all of the known Golden-winged Warbler sites in the Cumberland Mountains are either owned by the Tennessee Valley Authority or are in private ownership, and are susceptible to re-mining in the future.

Timber management is expected to increase in this region, especially on the Sundquist Wildlife Management Area. Statewide, this study found few Golden-winged Warblers occupying clearcuts; however, fire following timber harvest may greatly improve the chance that these areas will become Golden-winged Warbler breeding habitat. An experimental burn in Georgia in March 2003 was successful in increasing the number of Golden-winged Warbler territories from three in 2002 to 12 in 2003 and decreasing the number of hybrids from two in 2002 to zero in 2003. The new territories were focused on areas of particularly high fire intensity where most trees and all saplings had been topkilled (Klaus *In press*). Prescribed burns should be conducted following timber harvest at sites higher than 850 m (2,800 ft) in elevation.

Southern Blue Ridge

The Golden-winged Warbler has nearly been extirpated from the Southern Blue Ridge portion of its range, and cooperative active management between Tennessee, North Carolina, and Georgia will be needed to maintain a viable population here. Without natural forces like frequent fires, beavers, and large herbivores creating early successional habitat, limited timber harvest will be needed to create patches suitable for golden-wings (Klaus and Buehler 2001). These patches should be burned following timber harvest and grouped in close proximity to known Golden-Winged Warbler populations in North Carolina's Pisgah and Nantahala National Forests and populations in Georgia (Klaus *In press*).

Special management attention needs to be focused on Hampton Creek Cove and the adjacent Over Mountain Victory Trail site. Together they support 32 singing male Golden-winged Warblers, by far the largest single population in the state (See Appendix). Hampton Creek Cove is a State Natural Area managed by the Southern Appalachian Highlands Conservancy. Cattle grazing is used to maintain the site in an early successional state specifically for the benefit of Golden-winged Warblers. The U.S. Forest Service (USFS) owns the Over Mountain Victory Trail site and is allowing the area to succeed into forest. Trently (2002) believes that cattle grazing alone will be insufficient to maintain vegetation structure at Hampton Creek Cove, and reforestation on the Over Mountain Victory Trail property will soon cause golden-wing abandonment (A. Trently pers. comm.). A cooperative agreement is needed between the state and USFS to manage both sites using mechanical vegetation control and prescribed fire to maintain this area

in suitable breeding habitat. If Golden-winged Warblers are going to continue to exist in the Southern Blue Ridge region, partnerships like this between state and federal agencies, non-profit organizations, and private citizens interested in maintaining this species must be created and a regional management plan developed and implemented.

CONCLUSION

The effect Blue-winged Warblers are having on the decline of Golden-winged Warblers in Tennessee is unclear, but the creation and maintenance of early successional habitat at higher elevations is critical to maintaining viable populations of golden-wings in the state. A management plan specific to Golden-winged Warblers needs to be developed and implemented that will include monitoring of Golden-winged, Blue-winged and hybrid warbler populations and the successional state of golden-wing habitat. It should include specific recommendations for restoring and managing early successional vegetation on abandoned mine sites, restoration techniques for unoccupied or low-density area-mine sites, and revegetation recommendations for new mine sites. The plan should also include a section on the Southern Blue Ridge identifying techniques for restoring, maintaining, and increasing the amount of Golden-winged Warbler breeding habitat on public and private land. Another benefit of maintaining and expanding the amount of early successional habitat in the Cumberland Mountains and Southern Blue Ridge will be the creation of additional habitat for other species of conservation concern and public interest that require similar early successional habitat like Whip-poor-will, Northern Bobwhite and Ruffed Grouse.

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APPENDIX. Locations of Golden-winged, Blue-winged, and hybrid warblers found during the Tennessee Golden-winged Warbler Atlas Project in May 2001 and 2002.

Site name	County	Coordinates latitude/longitude	Elevation (m)	Habitat Type[1]	SIZE (ha)	GW[2]	BW[3]	Hybrid
Lower Cumberland Plateau								
Beech Grove	Anderson	36° 14.39 / 84° 11.77	381	SM	2 to 10	1	—	—
Blain Smith Road	Bledsoe	35° 24.44 / 85° 13.52	600	PP	>10	—	1	—
Meadow Creek Road	Bledsoe	35° 36.38 / 85° 20.79	600	SM	>10	—	1	—
Castro Pugh	Cumberland	36° 05.51 / 85° 06.70	540	CC	>10	2	—	—
Millstone	Cumberland	35° 54.29 / 84° 46.16	400	CC	>10	—	1	—
Pig Path	Cumberland	35° 53.72 / 84° 45.34	400	CC	>10	—	1	—
Piney Creek	Cumberland	35° 54.84 / 84° 46.46	440	CC	>10	1	—	—
Ridge Gap Road	Cumberland	35° 55.48 / 84° 43.58	448	CC	>10	1	2	—
Lowe Road	Cumberland	35° 53.78 / 85° 10.32	483	PP	>10	2	3	1
Hughes Ridge	Hamilton	35° 21.50 / 85° 11.50	600	PP	>10	1	1	—
Scutcheon	Morgan	36° 09.52 / 84° 37.34	338	CC	>10	—	1	—
Rock Springs Road	Overton	36° 11.25 / 85° 15.81	452	SHF	<2	—	1	—
Nelson Harrison	Rhea	35° 37.70 / 85° 02.13	599	PP	<2	—	—	1
Pemberton Branch	Scott	36° 20.56 / 84° 33.71	442	SHF	2 to 10	—	1	1
Upper Jellico	Scott	36° 33.75 / 84° 19.21	331	SHF	<2	1	1	—
Norma Road	Scott	36° 20.31 / 84° 23.44	379	SHF	2 to 10	—	1	—

Site name	County	Coordinates latitude/longitude	Elevation (m)	Habitat Type[1]	SIZE (ha)	GW[2]	BW[3]	Hybrid
Capuchin Creek	Scott	36° 34.27 / 84 °16.93	382	SHF	<2	—	1	—
Gum Branch	Scott	36° 34.38 / 84° 19.41	351	CC	>10	—	2	—
Pleasant Grove Road	Scott	36° 33.69 / 84° 26.77	409	SHF	2 to 10	—	—	1
Connell Road	Van Buren	35° 47.03 / 85° 28.79	336	SHF	<2	—	2	—
Eastland Road	White	35° 55.26 / 85° 18.42	552	CC	>10	—	1	—
Deer Run	White	35° 55.75 / 85° 15.77	525	PP	2 to 10	2	—	—
Cumberland Mountains								
Bootjack CC	Anderson	36° 12.02 / 84° 22.98	658	CC	2 to 10	1	—	—
Fork Mountain CC	Anderson	36° 09.09 / 84° 25.60	878	CC	>10	1	—	—
Fork Mountain SHF	Anderson	36° 09.05 / 84° 25.38	915	SHF	<2	1	—	—
Fork Mountain Utility	Anderson	36° 09.12 / 84° 24.10	901	UT	2 to 10	4	—	
Pine Orchard Flat	Anderson	36° 10.16 / 84° 19.91	635	CC	2 to 10	1	—	—
Stallion Mountain	Anderson	36° 08.94 / 84° 26.46	937	SM	2 to 10	3	—	1
Windrock Trail #1	Anderson	36° 05.86 / 84° 20.37	701	SM	2 to 10	—	—	1
Buffalo Mtn Ridge North	Anderson	36° 08.50 / 84° 19.22	870	SM	2 to 10	1	—	
Red Oak Church	Anderson	36° 12.62 / 84° 17.42	717	SM	2 to 10	2	—	—
Bootjack Lower	Anderson	36° 12.66 / 84° 21.57	668	SM	>10	4	—	1
Windrock Trail #5	Anderson	36° 05.69 / 84° 21.66	711	SM	2 to 10	5	—	1
Fork Mtn Below Main	Anderson	36° 09.74 / 84° 25.64	828	SM	2 to 10	5	1	
Bootjack Upper	Anderson	36° 12.78 / 84° 21.62	787	SM	>10	8	1	—

Red Oak Rock Fall	Anderson	36° 12.98 / 84° 17.39	705	SM	<2	1	—	—
Burge Mountain	Anderson	36° 10.63 / 84° 24.06	960	SM	2 to 10	1	—	—
Buffalo Mtn Windmills	Anderson	36° 07.02 / 84° 20.04	1000	SM	2 to 10	9	—	—
Buffalo Mountain West	Anderson	36° 06.39 / 84° 20.61	839	SM	>10	4	—	1
Buffalo Mountain North	Anderson	36° 07.57 / 84° 20.22	851	SM	2 to 10	2	—	—
Smoky Mountain	Anderson	36° 10.11 / 84° 25.08	885	SM	<2	2	—	—
Fork Mountain Main	Anderson	36° 09.39 / 84° 25.87	821	SM	2 to 10	3	—	—
McNew Gap	Campbell	36° 24.01 / 84° 11.29	603	SM	>10	5	1	1
East Coal Mine #4	Campbell	36° 16.93 / 84° 17.60	757	SM	<2	1	—	—
Elk Release Site	Campbell	36° 17.88 / 84° 19.01	777	SM	2 to 10	2	—	—
Ashlog Mountain	Campbell	36° 16.06 / 84° 18.10	882	SM	>10	10	—	—
Bootjack Ridge North	Campbell	36° 13.12 / 84° 22.16	780	SM	2 to 10	1	—	—
West of Peabody North	Campbell	36° 26.83 / 84° 07.29	639	SM	>10	4	1	—
Lower Braden Mountain	Campbell	36° 23.85 / 84° 19.28	612	SM	<2	1	—	—
Lower Ash Log Gap	Campbell	36° 16.60 / 84° 17.78	753	SM	<2	1	—	—
Ash Log Gap	Campbell	36° 16.47 / 84° 17.67	854	SM	2 to 10	1	—	—
Grave Gap	Campbell	36° 17.08 / 84° 17.08	940	SM	<2	1	—	—
Hurricane Mountain	Campbell	36° 16.77 / 84° 16.55	1016	SM	2 to 10	2	—	—
Bootjack Campbell	Campbell	36° 12.85 / 84° 20.65	744	SM	>10	3	—	—
Brushy Mountain	Campbell	36° 19.28 / 84° 17.62	780	SM	2 to 10	6	—	—
Red Oak Mountain	Campbell	36° 12.59 / 84° 17.18	806	SM	>10	10	—	—
East Slope Cross Mtn	Campbell	36° 17.23 / 84° 14.63	777	SM	>10	12	—	—
Cooper Ridge North	Claiborne	36° 32.62 / 83° 53.26	599	SM	>10	4	1	—
Chimney Mountain	Scott	36° 30.54 / 84° 21.10	632	SM	>10	5	—	1

Site name	County	Coordinates latitude/longitude	Elevation (m)	Habitat Type[1]	SIZE (ha)	GW[2]	BW[3]	Hybrid
Lawson Mountain	Scott	36° 17.36 / 84° 24.99	765	SM	>10	1	—	—
Ligius Ridge South	Scott	36° 10.59 / 84° 27.10	832	SM	>10	5	—	—
Ligias Ridge North	Scott	36° 10.91 / 84° 27.41	837	SM	>10	2	—	3
Northeast Guinea Gap	Scott	36° 10.10 / 84° 25.52	825	SM	>10	4	—	—
Southern Blue Ridge								
Upper Sugar Hollow 1&2	Carter	36° 09.02 / 82° 04.05	933	AF	2 to 10	1	—	—
Over Mtn Victory Trail	Carter	36° 08.42 / 82° 03.94	1055	AF	2 to 10	7	—	—
Teaberry	Carter	36° 10.16 / 82° 02.63	981	SHF	<2	1	—	—
Upper Sugar Hollow #3	Carter	36° 09.12 / 82° 04.03	989	SHF	2 to 10	1	—	—
Old Buck Mountain	Carter	36° 12.13 / 82° 00.03	1047	SHF	>10	1	—	—
Rt. 143 South of Burbank	Carter	36° 07.78 / 82° 06.28	1097	SHF	2 to 10	3	—	—
End Sugar Hollow Road	Carter	36° 08.48 / 82° 04.15	1083	SHF	2 to 10	6	—	—
Hampton Creek Cove	Carter	36° 08.81 / 82° 02.87	994	SHF	>10	25	—	1
Miller Cemetery	Carter	36° 11.67 / 82° 00.97	1072	SHF	<2	—	—	1
Miller Cemetery Tree Farm	Carter	36° 11.53 / 82° 00.96	1060	CP	2 to 10	1	—	2
Sugar Hollow Tree Farm	Carter	36° 08.98 / 82° 04.21	947	CP	2 to 10	3	—	—
Gentry Road	Unicoi	36° 00.89 / 82° 31.38	934	UT	>10	4	—	—

[1] AF = abandoned farm; CC = clearcut; CP = commercial pine; SHF = shrubby field; SM = abandoned strip mine; UT = utility right-of-way
[2] Golden-winged Warbler
[3] Blue-winged Warbler

The Migrant 74 (3): 83-84, 2003

BREEDING SEASON RECORD FOR THE MOURNING WARBLER ON ROAN MOUNTAIN

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The Mourning Warbler (*Oporornis philadelphia*) is known to nest as far south as the highlands of West Virginia (Buckelew and Hall 1994) and northwest Virginia (Kain 1987) particularly in Highland, Bath and Augusta Counties. Finding a Mourning Warbler during the breeding season south of these locations, especially as far south as Tennessee, is significant. This paper outlines observations made of a male Mourning Warbler observed in northeast Tennessee on Roan Mountain in 2001 and 2002. The location was the same for both years and consisted of dense shrubs with few scattered trees. No breeding activity was observed.

On 23 June 2001, I located a male Mourning Warbler on Roan Mountain about 2.6 km from Carver's Gap at the junction of the Grassy Ridge Bald Trail and the Appalachian Trail at an elevation of 1712 m. The site is on the Mitchell County, North Carolina and Carter County, Tennessee border and can be found on the Carver's Gap USGS Quadrangle. This area is part of the Roan Mountain Massif. The bird sang its typical song repeatedly and was observed through 1 July 2001 by numerous observers. I returned to the area on 12 July and again on the 20 July but did not see or hear the bird.

I relocated a male Mourning Warbler in the same location on 6 June in 2002. On 24 June 2002, I observed the bird periodically singing an atypical song from high perches on Fraser firs (*Abies fraseri*). The song sounded like a harsher and shorter version of a Common Yellowthroat's (*Geothlypis trichas*) "witchety, witchety" song. I watched him fly from a high perch into the sky. When it reached a high point (about 10 m from the ground), it dove back towards the ground and swooped upwards just before coming in contact with the shrub canopy. While it dove, it sang a warbling song unlike its typical song. The bird was last seen on 29 June 2002.

On 24 June 2002, I delineated the male's territory by observing the areas in which the bird sang. Each singing perch was considered to be a point on the edge of the warbler's territory. After delineating the territory, I took data on habitat from the center of the territory. From this area, I visually surmised the percentage of vegetative elements within ten meters of a center point. Seventy percent of the area was shrubs, especially green alder (*Alnus crispa*) and blackberry (*Rubus allegheniensis*), 23% was herbaceous growth, 5% was trees, and only 2% was open ground (Table 1).

In 2003, I visited the site on 13 June, 18 June, 23 June and 19 July but did not relocate the Mourning Warbler.

Table 1. Summary of plants within ten meters of the center of the Mourning Warbler's territory

Vegetative Class	Percent cover	Average Height (m)
Trees:		
Mountain Ash (*Sorbus americana*)	4%	2.2
Fraser Fir	1%	4
Shrubs:		
Green Alder	35%	1.3
Blackberry	25%	0.8
Blueberry (*Vaccinium* spp.)	10%	1.2
Grass	15%	0.4
Ferns	8%	0.6
Open Ground	2%	

This is not the first record of a Mourning Warbler south of Virginia during the breeding season. Schmalz and others (1990) discovered a pair of Mourning Warblers at 1356 m beside Jenkins Ridge Overlook at Blue Ridge Parkway milepost 460.8 about 15 km N of the Oconaluftee Visitors Center, Great Smoky Mountains National Park on 16 June 1983. Both a male and a female were located but no nesting activity was observed. A pair of Mourning Warblers was seen at the same location in 1984. A male was observed carrying a green caterpillar into the vegetation, but no young were observed. In 1986 and 1987, males were located but no females. The habitat in this area was described as a 0.6-2.4 m high thicket composed of deciduous shrubs and saplings and extensive herbaceous growth, especially blackberries, similar to conditions at the Roan Mountain site, which is about 130 km northeast of Jenkins Ridge.

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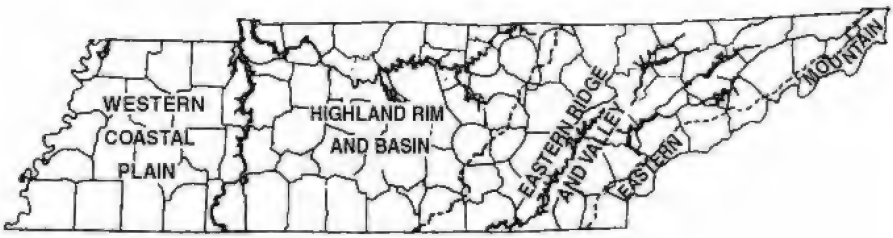
The Migrant 74 (3): 85-96, 2003

THE SPRING SEASON

RICHARD L. KNIGHT, Editor



1 March - 31 May 2003

Arriving migrants were greeted by warmer than average temperatures this year in March and April. Although March was on the dry side, both April (except West Tennessee) and May were quite rainy. This trend would continue through the summer. While many observers felt that the flight of regular migrants was unremarkable, a good variety of rarities were reported statewide. Several Red-necked Grebes, a Tricolored Heron, and a Black-legged Kittiwake were notable in northeast Tennessee, as was a Whimbrel at Kingston Steam Plant. A potential new nest site for Peregrine Falcons was found in the Smokies. Brown Pelican, Roseate Spoonbill and Painted Bunting highlighted the season near Chattanooga. The Nashville area hosted its usual good showing of Connecticut and Mourning warblers. A White-tailed Kite and Bell's Vireo occurred at Fort Campbell, as field work there continues to yield great results. A Ruff appeared in Hardin County in March, with a later one found in Shelby County. Northwest Tennessee (Lake and Dyer counties) produced both whistling-ducks and a nesting pair of Bell's Vireo. Many more noteworthy sightings are included in the regional reports.

Standard Abbreviations

ad - adult
Co - County
Cr - Creek
ers - earliest reported sighting
et al. - and others
fide - reported by
Ft. - Fort
im - immature
Is - Island
L - Lake
lrs - latest reported sighting
max - maximum count
m.ob. - many observers
Mtn - Mountain
NWR - National Wildlife Refuge
R - River
SP - State Park
WMA - Wildlife Management Area
yg - young

WESTERN COASTAL PLAIN REGION — While March and April were relatively dry, an unusually rainy May brought storms and tornadoes to the region. Migration seemed rather short-lived and unspectacular, especially for many regular transients. Nonetheless, a number of species did arrive early, and some remained late.

Exceptional, however, was the extraordinary mix of bird life in the northwest corner of the region from mid-May (and persisting into June, for that matter). During late May in Dyer and Lake counties, many observers witnessed a Glossy Ibis and a Tricolored Heron, several of both Black-bellied and Fulvous Whistling-ducks, and a nesting pair of Bell's Vireo. Also in that area this spring were many shorebirds, including Black-necked Stilts, a Marbled Godwit, a Willet, a Ruddy Turnstone, and 500 Dunlins. More modestly, the EARTH Complex in Memphis did produce its own Marbled Godwit and a brilliantly plumaged female Red-necked Phalarope; Black-necked Stilts, meanwhile, continue to thrive in Memphis.

Loon - Ibis: **Common Loon**: 4 May (2) Paris Landing SP, Henry Co (JSD, CAS, TJW), lrs. **Pied-billed Grebe**: 28 May (2 building a nest, plus 1 ad with 3 chicks) Lower Hatchie NWR (VH, DDP). **Horned Grebe**: 23 Mar (1) Hatchie NWR (MTOS). **American White Pelican**: reported from Dyer, Shelby & Tipton Cos., and throughout period in Lake Co (m.ob.); 8 Mar (65) Dyer Co (WGC), max. **Anhinga**: 10 May (1) Shelby Forest (WRP). **Least Bittern**: 10 May (1) Black Bayou (MAG, MCT, JRW); 13 May (1) Henry Co (DMa, MCT). **Great Egret**: 1-3 Mar (1) Shelby Farms (WRP), remaing from winter. **Snowy Egret**: 23 Mar (1) Hatchie NWR (MTOS), ers. **Tricolored Heron**: 30 May (1) Dyer Co (JRW, m.ob.). **Cattle Egret**: 13 Mar (1) EARTH Complex (JRW), ers. **Green Heron**: 29 Mar (1) Shelby Farms (MAG, MCT, JRW), ers. **Black-crowned Night-Heron**: 12 Apr (1) EARTH Complex (CAS, JRW). **GLOSSY IBIS**: 28-31 May (1) Dyer Co (Rebecca & Steve Satterfield, KCL, NaM, JRW et al.).

Duck - Rail: **BLACK-BELLIED WHISTLING-DUCK**: 10 May (11) Hwy 79, Lake Co (WGC, m.ob.); 31 May into Jun (9) Lake Co & (2) Dyer Co (BL, KCL, JRW, m.ob.). **FULVOUS WHISTLING-DUCK**: 25-30 May (9) Lake Co (BL, KCL, NaM, JRW, m.ob.); 30 May (1) Moss Is. Refuge, Dyer Co (KCL, NaM). **Greater White-fronted Goose**: 23 Mar (2) Hatchie NWR (MTOS). **Ross's Goose**: 17 Mar (1) Hardin Co (DJS et al.); 23 Mar (1) Hatchie NWR (MTOS). **Canada Goose**: 1 Mar (3) "Cackling" (*minima*) & (2) "Richardson's" (*hutchinsii*) Shelby Farms (WRP). **Gadwall**: 25 May (2) Lake Co (KCL, BL). **American Black Duck**: 27 May (1) Dyer Co (WGC, KCL). **Greater Scaup**: 30 Mar / 6 Apr (5 / 2) EARTH Complex (CHB, WRP, VBR, Martha Waldron, Linda Zempel); 27 May (1) Dyer Co (WGC), very late. **Surf Scoter**: 28-30 Mar (1) EARTH Complex (JRW et al.). **Bufflehead**: 27 May (1) Dyer Co (WGC, KCL), late. **Osprey**: 23 Mar (1) Hatchie NWR (MTOS), ers. **Mississippi Kite**: 16 Apr (1) Memphis (Jim & Sue Ferguson, Keith Kunkel), ers; 5 / 20 May (1 / 2) Carroll Co (MCT); 24 May (130) Black Bayou (JRW, KCL, m.ob.), max. **Bald Eagle**: 15 Mar (1) Tipton Co (JRW); 28 Mar - 17 May (1 ad) EARTH Complex (JRW,

m.ob.). **Sharp-shinned Hawk**: 24 May (1) Dyersburg (KCL). **Broad-winged Hawk**: 22 Mar (2) north Shelby Co (WRP), record early for Co. **"Harlan's" Red-tailed Hawk**: 15 Mar (1) EARTH Complex (JRW). **Peregrine Falcon**: 10 May (1) Black Bayou (MAG, MCT, JRW); 17 May (1) EARTH Complex (JRW). **Sora**: 14 Mar (1) Shelby Farms (VBR), ers; 12 Apr (6) Lower Hatchie NWR (MTOS), max.

Shorebirds: **Black-bellied Plover**: 11 May (17) Tipton Co (David Brown, JRW), max. **American Golden-Plover**: 5 Apr (1500) Lauderdale Co (JRW), max; 31 May (1) Lake Co (Winston Walden, JRW et al.), lrs. **Semipalmated Plover**: 15 Mar (1) Eagle Lake WMA, Shelby Co (JRW), record early for West Tenn. **Black-necked Stilt**: 16 Mar (1) EARTH Complex (JRW), ers; 10 May (50) North Treatment Plant, Shelby Co (Margaret Jefferson, Ed Thomas) & (40) EARTH Complex (VBR), max; also noted in Dyer & Lake Cos (m.ob.). **American Avocet**: 21 Apr (17) Pickwick SP (David Hancock). **Lesser Yellowlegs**: 25 May (4) EARTH Complex (CHB, VBR), lrs. **Willet**: 24 -25 May (1) Hwy 79W (JRW et al.). **Upland Sandpiper**: 27 Mar (3) Shelby Farms (JRW); 12 Apr (1) EARTH Complex (CAS, JSD); 26-27 Apr / 10 May (4 / 2) Hwy 79W (JRW et al.). **Marbled Godwit**: 26 Apr (1) Hwy 79W (JRW); 11 May (1) EARTH Complex (CHB, VBR). **Ruddy Turnstone**: 11 May (1) Tipton Co (JRW) & (1) EARTH Complex (CHB, VBR); 26-27 May (1) Dyer Co (WGC, KCL). **Sanderling**: 2 May (1) Hatchie NWR (CHB, Barbara Wilson, Linda Zempel); 24 May (4) Hwy 79W (JRW et al.). **White-rumped Sandpiper**: 17 May (191) EARTH Complex (JRW), max. **Baird's Sandpiper**: 30 Mar (1) EARTH Complex (JRW), ers. **Dunlin**: 24 May (500) Dyer & Lake Cos (JRW et al.), max. **Stilt Sandpiper**: 23 Mar (4) Hatchie NWR (MTOS), ers. **Ruff**: 17 Mar (1 ad male) bottoms west of Tenn. R., Hardin Co (DJS et al.), first Co record; 23 Apr (1 female) Eagle Lake WMA, Shelby Co (JRW). **Wilson's Snipe**: 17 May (2) EARTH Complex (JRW), lrs. **Wilson's Phalarope**: 17 Mar (1) Hardin Co (DJS et al.), quite early; 11 May (1) Lake Co (JRW, NaM); 17 May (3) EARTH Complex (JRW). **Red-necked Phalarope**: 17-18 May (1 female) EARTH Complex (JRW et al.).

Gull - Owl: **Laughing Gull**: 10 May (1) Lake Co (WGC, MAG, MCT, JRW). **Bonaparte's Gull**: 4 May (1) Reelfoot L., Lake Co (JSD, CAS, TJW), lrs. **THAYER'S GULL**: 2 Mar (2) Pickwick SP (JRW, photos), pending TBRC. **Lesser Black-backed Gull**: 2 Mar (4) Pickwick SP (JRW); 8 Mar (1 ad) Britton Ford, Henry Co (JRW); 8 Apr (1 ad) Paris Landing SP, Henry Co (MCT). **Glaucous Gull**: 2 Mar (1) Pickwick SP (JRW). **Black-billed Cuckoo**: 27 Apr (1) Carroll Co (MCT); 10 May (1) Shelby Forest (VH, Gerry Papachristou, David Blaylock); 30 May (1, carrying food) Dyer Co (JRW et al.). **Long-eared Owl**: 1 Mar (1) Atoka, Tipton Co (David Brown, DDP, Don Preston).

Flycatcher - Waxwing: **Willow Flycatcher**: 13 May (3) Henry Co (DMa, MCT); 24 May (1) Carroll Co (MCT et al.). **Western Kingbird**: 23 Apr / 17 May (1 / 5, with 2 nests being built) EARTH Complex (JRW). **Scissor-tailed Flycatcher**: 30 Apr (1) Oakland, Fayette Co (David Young). **White-eyed Vireo**: 17 Mar (1) Shelby Forest (DDP), record early arrival for Co. **BELL'S VIREO**: 7 May thru period (1-2) Black Bayou (MCT, m.ob.), nest with 4 eggs found 12 May (MCT). **Bank Swallow**: 5 Apr

(1) Lake Co (JRW), ers; 10 May (30) Mud Is., Shelby Co (Margaret Jefferson, Ed Thomas); 30 May (66) Dyer Co (KCL, NaM); all 3 records pertain to nesting sites. **Cliff Swallow**: 29 Mar (1) Shelby Farms (MAG, MCT, JRW), ers; 20 May (75 nests) Memphis (VBR, Larry Wilson). **House Wren**: 20-26 May (1) Gibson Co (MAG). **Sedge Wren**: 12 Apr (1) Hatchie NWR (MAG); 27 Apr (1) Shelby Farms (WRP). **Blue-gray Gnatcatcher**: 17 Mar (2) Shelby Forest (DDP), ers. **American Pipit**: 10 May (6) Lake Co (MAG, MCT, JRW) & (1) Shelby Farms (WRP), lrs. **Cedar Waxwing**: 13 May (500) Shelby Farms (DDP), max.

Warblers: **Northern Parula**: 17 Mar (1) Shelby Forest (DDP), ers. **Yellow Warbler**: 7 Apr (1) Gibson Co (MAG), ers. **Cape May Warbler**: 7-13 May (3-4) Lake Co (MCT et al.). **Prairie Warbler**: 19 / 31 May (1) north Shelby Co (VBR). **Cerulean Warbler**: 4 Apr (1) Shelby Forest (VBR), ers. **Worm-eating Warbler**: 18 Apr (4) Shelby Forest (WRP), max. **Swainson's Warbler**: 17 Apr - 25 May (1-2) Henry Co (MCT et al.); 27 Apr (5) Shelby Forest (WRP), max; 27 Apr (1) Carroll Co (MCT). **Connecticut Warbler**: 9 May (1) Shelby Farms (VBR); 10-12 May (1) Lake Co (MAG, MCT). **Mourning Warbler**: 13 May (1) Henry Co (DMa, MCT) & (1) Lake Co (KCL, BL et al.). **Wilson's Warbler**: 10 May (1) Shelby Forest (VH, Gerry Papachristou, David Blaylock). **Canada Warbler**: 10 May (1) Shelby Forest (WRP).

Tanager - Blackbird: **Scarlet Tanager**: 26 May (1) Shelby Forest (VH); 28 May (1) Lower Hatchie NWR (VH, DDP). **American Tree Sparrow**: 1 / 9 Mar (1) Lake Co (JRW, KCL, NaM, Hap Chambers); 2 Mar (1) Wolf River WMA, Fayette Co (Sue Ferguson). **Lark Sparrow**: 20 Apr (1) EARTH Complex (CHB, WRP, VBR); 22 Apr - 24 May (2 locations) Henry Co (MCT et al.); 3-25 May (2 locations) Carroll Co (DMa, MCT et al.). **Grasshopper Sparrow**: 10 May (150) Lake Co (WGC, MAG, KCL, NaM, MCT, JRW), max. **Henslow's Sparrow**: 1-20 May (1-2) Henry Co (MCT et al.). **LeConte's Sparrow**: 8 Mar (1) Britton Ford, Henry Co (JRW, Jason Mann); 29 Mar (2) Shelby Farms (MAG, MCT, JRW). **White-throated Sparrow**: 30 May (1) Oakland, Fayette Co (Theresa Graham), very late. **Dickcissel**: 1 Mar (1) Wynnburg, Lake Co (JRW, KCL, NaM). **Brewer's Blackbird**: 29 Mar (3) Shelby Farms (MAG, MCT, JRW).

Locations: Black Bayou - in Lake Co; EARTH Complex - in Shelby Co; Hatchie NWR - in Haywood Co; Hwy 79W - in Lake Co; Lower Hatchie NWR - in Lauderdale Co; Pickwick SP - in Hardin Co; Shelby Farms / Forest - in Shelby Co.

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HIGHLAND RIM AND BASIN REGION — From the beginning of March through mid-May, temperatures in Nashville were two to three degrees above average. However, for the last two weeks of May temperatures were well below average, although the mean temperature for the month was normal. March was

dry with less than half its expected rainfall, followed by nearly normal precipitation in April. However, May rainfall totals almost reached record levels, when Nashville got 10.7 inches, over twice the monthly average. On 5 May over 4.6 inches of rain fell. This one day total was just short of the monthly average, causing serious flooding to the Harpeth River and other rivers and streams in middle Tennessee. Conditions were exacerbated two days later when another 2.5 inches fell.

Grebe - Scoter: **Eared Grebe**: 12 Apr (1) Center Hill L., DeKalb Co (SJS et al.). **American Bittern**: 26 Mar (1) Murfreesboro (Manfred & Linda Schien). **Green Heron**: 5 Apr (1) Shelby Bottoms (PDC, MAZ, Michael Smith), ers. **Yellow-crowned Night-Heron**: 2 Apr (2 at nest) Burgess Falls State Natural Area, Putnam Co (SJS). **Green-winged Teal**: 5 Apr (750) Duck R. Unit (JSD, CAS), max. **Blue-winged Teal**: 13 Mar (1) Williamsport L., Maury Co (GBC, JKS), ers; 5 Apr (1500) Duck R. Unit (JSD, CAS), max. **Canvasback**: 3 Mar (39) Radnor L (JKS). **Greater Scaup**: 5 Apr (35) Duck R. Unit (JSD, CAS). **Surf Scoter**: 24 Mar (1) Montgomery Bell SP, Dickson Co (PDC, GBC); 28 Apr / 2 May (2 / 4) Radnor L (PDC, JKS, Mark Hackney / Michael Bierly, Kevin Bowden, JKS).

Kite - Sapsucker: **WHITE-TAILED KITE**: 7-8, 11 Apr (1) Ft. Campbell (DMo - photos, m.ob.). **Mississippi Kite**: 27 Apr (1) Duck R. Unit (JSD, CAS). **Bald Eagle**: 13 Mar (1 on nest) Williamsport L., Maury Co (GBC, JKS); 10 May (1) Bell's Bend (Troy Ettel). **Broad-winged Hawk**: 5 Apr (1) Duck R. Unit (JSD, CAS), ers. **Peregrine Falcon**: 10 May (1) Percy-Priest L., Rutherford Co (JSD). **Common Moorhen**: 18 May (1) Murfreesboro (TJW). **American Golden-Plover**: 5 Apr (12) Duck R. Unit (JSD, CAS). **American Avocet**: 5 Apr (1) Duck R. Unit (JSD, CAS); 15 May (20) Old Hickory L., Davidson Co (Robert Lane). **Least Sandpiper**: 14 May (22) Bellevue, Davidson Co (FCF). **White-rumped Sandpiper**: 7 May (1) Bell's Bend (Troy Ettel); 19 May (4) Murfreesboro (TJW). **Dunlin**: 11 May (2) Bellevue, Davidson Co (FCF). **Eurasian Collared-Dove**: 10 May (2, nest building) Franklin, Williamson Co (TJW); 31 May - 1 Jun (1) Hermitage, Davidson Co (Jo Ann Tomasso fide JKS). **Yellow-billed Cuckoo**: 21 Apr (1) Shelby Park (PDC), ers. **Whip-poor-will**: 8 Apr (1) Nashville (Jan Alexander), ers. **Chimney Swift**: 4 Apr (3) Nashville (Dee Thompson), ers. **Ruby-throated Hummingbird**: 8 Apr (1) Byrdstown, Pickett Co (Howard Groce), ers. **Yellow-bellied Sapsucker**: 10 May (1) Cheatham Co (Jerry Drewry, Sabin Thompson), lrs.

Flycatcher - Thrush: **Yellow-bellied Flycatcher**: 12 May (1) Radnor L (FCF). **Willow Flycatcher**: 6 May (1) Shelby Park (PDC), ers; 10 May (2 / 2) Williamson Co / Cheatham Co (TJW / Jerry Drewry, Sabin Thompson). **Least Flycatcher**: 27 Apr (2) Radnor L (RHC). **Scissor-tailed Flycatcher**: 10 May (1) Bear Cr. WMA, Stewart Co (John C. Robinson). **White-eyed Vireo**: 5 Apr (1) Duck R. Unit (JSD, CAS), ers. **BELL'S VIREO**: 9 May (2) Ft. Campbell, Stewart Co portion (Jim Giocomo). **Yellow-throated Vireo**: 14 Apr (1) Narrows of the Harpeth SP (PDC), ers. **Warbling Vireo**: 5 Apr (2) Duck R. Unit (JSD, CAS), ers. **Philadelphia Vireo**: 2-21 May (1+) Radnor L (PDC, FCF). **Red-eyed Vireo**: 14 Apr (1) Narrows of the Harpeth SP

(PDC), ers. **Tree Swallow**: 10 Mar (30) Monsanto Ponds, Maury Co (AV), ers. **Northern Rough-winged Swallow**: 13 Mar (4) Shelby Park (PDC), ers. **Barn Swallow**: 15 Mar (1) Monsanto Ponds, Maury Co (GBC, NTOS), ers. **Bewick's Wren**: 10 May (2) Sumner Co (CAS, Kin Cosner); 10 May (2) Rutherford Co (JSD). **Blue-gray Gnatcatcher**: 25 Mar (1) Shelby Bottoms (PDC), ers. **Gray-cheeked Thrush**: 1-12 May (1+) Radnor L (JKS, FCF). **Swainson's Thrush**: 2 Jun (1) Ft. Campbell (DMo), lrs.

Warblers: **Blue-winged Warbler**: 14 Apr (1) Narrows of the Harpeth SP (PDC), ers. **Golden-winged Warbler**: 29 Apr (1) Shelby Park (PDC, JKS), ers. **Tennessee Warbler**: 22 Apr / 15 May (1+) Radnor L (PDC, FCF), ers / lrs. **Orange-crowned Warbler**: 16 Apr (1) Radnor L (PDC, FCF). **Nashville Warbler**: 16 Apr (1) Radnor L (RHC), ers. **Northern Parula**: 27 Mar (1) Narrows of the Harpeth SP (PDC), ers. **Yellow Warbler**: 19 Apr (1) Radnor L (GBC, NTOS), ers. **Chestnut-sided Warbler**: 29 Apr / 15 May (1+) Shelby Park / Radnor L (PDC, JKS / FCF), ers / lrs. **Magnolia Warbler**: 28 Apr / 2 Jun (1 / 1 banded) Radnor L / Warner Parks (PDC, JKS / Sandy Bivens), ers / lrs. **Cape May Warbler**: 29 Apr / 17 May (2 / 1) Shelby Park / Radnor L (PDC, JKS / FCF, David Trently), ers / lrs. **Black-throated Green Warbler**: 2 Apr (1) Radnor L (JKS), ers. **Blackburnian Warbler**: 7 Apr / 21 May (1+) Nashville / Radnor L (Linda Kelly / FCF), ers / lrs. **Palm Warbler**: 23 May (1) Radnor L (FCF), lrs. **Bay-breasted Warbler**: 2 / 20 May (2 / 1) Radnor L (PDC / Sharon Monroe), ers / lrs. **Blackpoll Warbler**: 23 Apr / 24 May (2 / 1) Radnor L / Nashville (GBC, PDC, RHC, FCF / JKS), ers / lrs. **Cerulean Warbler**: 21 Apr (1) Shelby Park (PDC), ers. **Black-and-white Warbler**: 16 Mar (1) Perry Co (AV), ers. **American Redstart**: 14 Apr (1) Narrows of the Harpeth SP (PDC), ers. **Prothonotary Warbler**: 28 Mar (1) Cheatham Co (Dee Thompson, Tarcila Fox), ers. **Louisiana Waterthrush**: 23 Mar (4) Montgomery Bell SP, Dickson Co (PDC, MAZ), ers. **Connecticut Warbler**: 10 May (2) Warner Parks (FCF, Jason Mann et al.); 17 May (2) Shelby Bottoms (PDC, FCF, Kevin Bowden); 17, 19, 30 May (1) Radnor L (PDC, FCF, JKS et al.). **Mourning Warbler**: 13, 26, 28 & 30 May, 2 Jun (1-2) Radnor L (Sharon Monroe, PDC, FCF, JKS et al.); 14 May (1) Nashville (Jan Alexander); 27 May (1 banded) Warner Parks (Sandy Bivens); 2 Jun (1) Nashville (Linda Kelly). **Common Yellowthroat**: 5 Apr (1) Duck R. Unit (JSD, CAS), ers. **Wilson's Warbler**: 4 / 29 May (1+) Shelby Bottoms (PDC, MAZ), ers / lrs. **Canada Warbler**: 27 Apr / 28 May (1+) Radnor L (Michael Smith / FCF), ers / lrs.

Tanager - Oriole: **Scarlet Tanager**: 9 Apr (1) Perry Co (AV), ers. **Lark Sparrow**: 10 May (3) Rutherford Co (JSD); 12 May (3) Wilson Co (GBC, JKS). **Henslow's Sparrow**: 7 Apr (6) Ft. Campbell (DMo), ers there; 27 Apr (2) Land Between the Lakes, Stewart Co (JSD, CAS). **Rose-breasted Grosbeak**: 19 Apr (1) Radnor L (GBC, NTOS), ers. **Bobolink**: 7 May (10) Bell's Bend (Troy Ettel). **Orchard Oriole**: 19 Apr (1) Radnor L (GBC, NTOS), ers. **Baltimore Oriole**: 21 Apr (1) Lebanon (Kay & Ralph Brinkhurst), ers.

Locations: Bell's Bend - in Davidson Co; Duck R. Unit - unit of Tennessee NWR in Humphreys Co; Ft. Campbell - in Montgomery Co; Narrows of the Harpeth SP

- in Cheatham Co; Radnor L - in Davidson Co; Shelby Bottoms / Park - in Davidson Co; Warner Parks - in Davidson Co.

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CUMBERLAND PLATEAU / RIDGE & VALLEY REGION — This season was generally mild, except that the middle of May was slightly cooler than normal. Precipitation in March was below average, but rebounded to well above average in the following two months. April rains were heaviest in the northeast, with the Tri-cities area receiving double the average amount. May rains were heaviest in the south, with Chattanooga receiving well over double the average amount. Minor flooding occurred in many areas. Upper lakes in the TVA system filled up three to four weeks ahead of schedule, inundating shorebird habitat. Conversely, flooding created some shorebird habitat near Chattanooga.

Most observers commented that the movement of Neotropical migrant passerines was below average. However, the overall migration provided several interesting sightings. Rarities included Brown Pelican, Roseate Spoonbill, Fish Crow, and Painted Bunting, all in the Chattanooga area. Elsewhere, Red-necked Grebe, Ross's Goose, Whimbrel, and "Oregon" Junco were notable. Baird's Sandpiper, normally unexpected in spring, was reported three times.

Noteworthy breeding records were reported for Yellow-crowned Night-Heron, Hooded Merganser, and Common Raven, among a few others.

Loon - Spoonbill: **Common Loon**: 17-22 May (1) Austin Springs (RLK), lrs. **Red-necked Grebe**: 12-19 Mar (1-2) Warrior's Path SP, Sullivan Co (FRC, Mary Erwin); 18 Apr (1) Boone L, Sullivan Co (RLK); 6-16 May (1) Austin Springs (RLK / AJT, Tom McNeil), had injured wing & apparently was unable to migrate. **American White Pelican**: 11-23 Mar (6) Dutch Bottoms, Cocke Co (fide David Trently, m.ob.); 28 May (1) Ft. Loudoun Dam, Loudon Co (Meredith Clebsch). **BROWN PELICAN**: 20 / 25 May (1 im) Chickamauga L., Hamilton Co (Gail Savas / Jimmy & Cynthia Wilkerson). **Double-crested Cormorant**: 6 Apr (200) Seven Is. Refuge, Knox Co (KTOS); 19 Apr (300) Rankin Bottoms (MBS), max; thru 28 May (2) Austin Springs (RLK). **American Bittern**: 13 & 27 Apr / 10 May (3-1) Brainerd Levee (KAC et al.); 26 Apr (1) Standifer Gap Marsh (DEP); 5 May (1) Kingston Steam Plant (JRW et al.). **Least Bittern**: 10 May (1) Standifer Gap Marsh (DEP). **Great Blue Heron**: early Mar (3 standing on nests) Allen's Bridge, Greene Co (DHM), nesting here since 2001; 20 Mar thru season (15 active nests) below Ft. Patrick Henry Dam, Sullivan Co (Mary Erwin, Judy Roach, m.ob.); late Mar (25 nests) just off Main Street, Sevierville (Michelle Brown); newly reported colonies on northeastern edge of expansion. **Great Egret**: 19 Mar (1) Knox Co (Mark Campen); 27 Mar (1) Cove Lake SP (NeM); 29 Mar (1) Greene Co (DHM et al.); ers. **Snowy Egret**: 10 May (1) Brainerd Levee (Mike McMahan). **Cattle Egret**: 22-29 Mar (1)

Greene Co (DHM et al.), early; 18 May (2) Kingston Steam Plant (FLB). **Yellow-crowned Night-Heron**: 23 Mar thru season (5 nests at 2 sites) greenbelt along Reedy Cr., Kingsport (Marion Finucane / RAP; m.ob), first nests found in Sullivan Co. **ROSEATE SPOONBILL**: 31 May - 4 Jun (1) Soddy-Daisy, Hamilton Co (MJN, m.ob.), first for SE Tenn.

Goose - Rail: **Snow Goose**: 7 Mar (1) Doak's Pond, Campbell Co (NeM); 9 Mar (3 white, 1 blue) Cove Lake SP (RDH, DMy, FLB, SAB). **Ross's Goose**: 6-7 Mar (4) Eagle Bend (NeM et al.); 9 Mar (3) Cove Lake SP (RDH, DMy, FLB, SAB / NeM); 25-26 Mar (1) Bradley Co (David Chaffin); 27 Mar (1) Hamilton Co (Susan Schott). **Canvasback**: 1-2 Mar (3) Greene Co (DHM). **Redhead**: 2 Mar (20) Cherokee Dam, Grainger & Jefferson Cos (Jean Alexander, David Johnson); thru 21 Mar (6) Brainerd Levee (KAC et al.). **Hooded Merganser**: 10 May (1 female & 7 yg) Kyker Bottoms, Blount Co (Bill Smith fide Jean Alexander). **Bald Eagle**: 16 Apr (1 ad) Greene Co (DAH); 10 May (1 ad) Cherokee Dam, Grainger & Jefferson Cos (Harold Howell). **Northern Harrier**: 4 May (1) Washington Co (RLK, JWC), lrs. **Broad-winged Hawk**: 14 Apr (115) Soddy Mtn., Hamilton Co (Jimmy Wilkerson), max. **Merlin**: 7 Apr (1) Anderson Co (Jim Giocomo et al.); 13 May (2) Washington Co (HPL, BKS, Reece Jamerson), late. **Peregrine Falcon**: thru period (pair) Chickamauga Dam, Hamilton Co (m.ob.); 4 Apr (1) below Boone Dam, Sullivan Co (RLK); 11 May (1) Alcoa, Blount Co (CM, TE). **Virginia Rail**: 18 Mar - 10 May (5-11) Standifer Gap Marsh (DEP et al.), likely nesting. **Sora**: 18 Mar - 10 May (1-7) Standifer Gap Marsh (DEP et al.); 13 Apr - 10 May (1-2) Brainerd Levee (KAC et al.); 26 Apr - 13 May (1) Minga Marsh, Sullivan Co (JWC, RAP).

Shorebirds: **Black-bellied Plover**: 3 May (1) Kingston Steam Plant (JRW et al.). **American Golden-Plover**: 30-31 Mar (3) Brainerd Levee (KAC, Marty Paige); 28 Apr / 6 May (1 / 2) Kingston Steam Plant (FLB, SAB, RDH, DMy). **American Avocet**: 25 Apr (1) Nickajack L (DRJ). **Greater Yellowlegs**: 8 Mar (5) Greene Co (DHM), ers. **Lesser Yellowlegs**: 4 Mar (1) Austin Springs (HPL, BKS), ers. **Willet**: 4 May (1) Rankin Bottoms (Chris Welsh et al.); 5 May (1) Greene Co (DHM); 9 May (1) Austin Springs (RLK). **Spotted Sandpiper**: 28 May (4 at 2 sites) Washington Co (RLK), lrs. **Whimbrel**: 18 May (1) Kingston Steam Plant (FLB, SAB, TJW). **Western Sandpiper**: 3 May (1) Kingston Steam Plant (JRW et al.); 20 May (2) Eagle Bend (NeM). **White-rumped Sandpiper**: 4 -5 / 23 May (1) Kingston Steam Plant (FLB et al. / KDE); 10 May (1) Standifer Gap Marsh (DEP); 21 / 30 May (1 / 2) Brainerd Levee (KAC). **Baird's Sandpiper**: 20 May (1) Eagle Bend (NeM); 23 May (1) Kingston Steam Plant (KDE); 24 May (4) Greene Co (DHM); very unusual in spring. **Dunlin**: 24 Mar (4) Rankin Bottoms (MBS); 21-22 May (1-2) Brainerd Levee (KAC, MJN et al.); 22-23 May (1) Kingston Steam Plant (FLB / KDE). **Stilt Sandpiper**: 5 / 18 May (1) Kingston Steam Plant (JRW / FLB). **Short-billed Dowitcher**: 26 Apr (1) Washington Co (RLK); 21 May (4) Brainerd Levee (KAC, MJN). **American Woodcock**: 2 Mar - 1 Apr (1-3) Greeneville (DHM); 16 Mar (nest with 4 eggs) Meadowview Marsh, Sullivan Co (Dexter & Linda Newman); 16 Apr (1) Johnson City (RLK).

Gull - Hummingbird: **Laughing Gull**: 18 May (1) Chattanooga (David Vogt). **Herring Gull**: 25 Apr (1 ad) Nickajack L (KAC), lrs. **Caspian Tern**: 22 Mar / 25 Apr (1) Nickajack L (DRJ, RJH / KAC); 13 Apr (6) Rankin Bottoms (MBS); 5 May (1) Kingston Steam Plant (JRW). **Forster's Tern**: 5 May (3) Nickajack L (KAC); 9 / 11 May (1 / 14) Austin Springs (RLK). **Black Tern**: 6 May (1) Kingston Steam Plant (JRW et al.). **Eurasian Collared-Dove**: 5 May (2) across Tenn. R. in north Chattanooga (Bill Haley), first report there. **Black-billed Cuckoo**: 30 Apr (1) Knoxville (FLB). **Rufous Hummingbird**: 21 Mar (1 ad. female banded) Hamilton Co (Carol Fegarido, Bob Sargent).

Flycatcher - Pipit: **Olive-sided Flycatcher**: 28 May (1) Craven's House (KAC). **Willow Flycatcher**: 28 May (1) Greene Co (DHM). **Scissor-tailed Flycatcher**: 27 Apr thru season (2-3, nest building on 1 May) South Pittsburg, Marion Co (Elijah Cavett, Doug Geren, m.ob.). **Blue-headed Vireo**: 15 Mar (1) Royal Blue WMA (Troy Ettel), ers. **Yellow-throated Vireo**: 28 Mar (1) Roane Co (JDJ), ers. **Warbling Vireo**: 6 May (1) Craven's House (DRJ, RJH, MJN), rare in SE Tenn; 24 May (1) Scott Co (NeM). **Red-eyed Vireo**: 1 Apr (2) Royal Blue WMA (NeM), ers. **FISH CROW**: 10 May (2) Chester Frost Park, Hamilton Co (DRJ, RJH). **Common Raven**: 30 Mar / 15 Apr (2) Cross Mtn, Campbell Co (Ken Cutsinger / NeM), continuation of sightings in area; thru season (1-2) Kingsport (RAP); 4 -25 Apr (active nest) old quarry 2 miles below Boone Dam, Sullivan Co (RLK / AJT), first nest in Co; 14 / 28 May (3-4 fledged yg) quarry at town of Watauga, Carter Co (RLK). **Horned Lark**: 24 / 26 May (2-3) Greene Co (DHM). **Cliff Swallow**: 20 Mar (1) Eagle Bend (NeM), ers; 22 Mar (1) Kingsport (RAP), record early in NE Tenn. **Brown-headed Nuthatch**: 26 Apr (ad feeding nestlings) Kingston Steam Plant (SJS et al.). **Sedge Wren**: 18 Mar (2) Standifer Gap Marsh (DEP). **Marsh Wren**: 8 Mar (1) Greene Co (DHM), continuation from winter; 18 Mar / 27 Apr (1) Standifer Gap Marsh (DEP); 10 May (2) Brainerd Levee (KAC, DRJ, RJH); 5 May (1) Kingston Steam Plant (JRW et al.). **Blue-gray Gnatcatcher**: 12 Mar (1) Knoxville (Dan Mooney), ers. **Wood Thrush**: 5 Apr (1) Knox Co (KDE), ers. **American Pipit**: 9 May (11) Austin Springs (RLK), lrs.

Warblers: **Blue-winged Warbler**: 14 Apr (1) Sullivan Co (Bert Hale), ers; 23-24 May (3) Scott Co (NeM), apparently on territory. **Golden-winged Warbler**: 16 Apr (2) Cross Mtn, Campbell Co (NeM), ers. **Orange-crowned Warbler**: 21 Apr (1) Campbell Co (NeM). **Nashville Warbler**: 19 Apr (1) Greene Co (DHM), ers. **Northern Parula**: 28 Mar (1) Roane Co (JDJ), ers. **Black-throated Blue Warbler**: 19 Apr (2) Campbell Co (NeM), ers; 28 Apr - 12 May (5 records) Craven's House (KAC), good showing for a scarce migrant in Chattanooga area. **Black-throated Green Warbler**: 22 Mar (1) Knoxville (Laurie Mooney), ers. **Blackburnian Warbler**: 19 Apr (1) Greene Co (DHM), ers. **Yellow-throated Warbler**: 16 Mar (1) Sewannee, Franklin Co (Jerry Ingles), ers; 22 Mar (1) Kingsport (RAP), record early in NE Tenn. **Cerulean Warbler**: 23 May (17) southern Scott Co (NeM). **Black-and-white Warbler**: 27 Mar (1) Campbell Co (NeM), ers. **Prothonotary Warbler**: 21 Apr (3) Greene Co (DHM); 9 May (1) Austin Springs (RLK); uncommon in upper

East Tenn. **Swainson's Warbler**: 13 Apr (1) Clear Cr., Morgan Co (SJS, Barbara Stedman), ers; 16 Apr thru season (1) Cove Lake SP (NeM); 4 May (1) Marion Co (KAC, DRJ, MJN); 10 May (1) Signal Mtn., Hamilton Co (Jonnie Sue Lyons). **Louisiana Waterthrush**: 18 Mar (1) Royal Blue WMA (NeM), ers. **Connecticut Warbler**: 14 -15 May (1) Greene Co (DAH). **Mourning Warbler**: 6 Jun (1) Big South Fork, Scott Co (SJS), late.

Sparrow - Blackbird: **Vesper Sparrow**: 11 Mar (4) Roane Co (JDJ); 22 Mar (1) Cocke Co (DHM); 27 Mar - 7 Apr (1-2) Austin Springs (RLK); 9 Apr (1) Eagle Bend (NeM). **Grasshopper Sparrow**: 29 Apr (35+) Campbell Co (NeM), max. **White-throated Sparrow**: 28 May (1) Chattanooga (DEP), lrs. **"Oregon" Dark-eyed Junco**: mid Apr (1) Bluff City, Sullivan Co (Bert Hale). **Indigo Bunting**: 9 Apr (1) Roane Co (JDJ), ers. **PAINTED BUNTING**: 4 -17 Apr (1 male) Hamilton Co (Margarite Fridl, RJH, m.ob.). **Dickcissel**: 4 May thru season (1-3) Limestone, Washington Co (RLK et al.), 8th year at site. **Rusty Blackbird**: 26 Apr (2) Austin Springs (RLK), lrs.

Locations: Austin Springs - in Washington Co; Brainerd Levee - in Hamilton Co; Cove Lake SP - in Campbell Co; Craven's House - unit of Chickamauga National Military Park in Hamilton Co; Eagle Bend - fish hatchery in Anderson Co; Kingston Steam Plant - in Roane Co; Nickajack L - in Marion Co; Rankin Bottoms - in Cocke Co; Royal Blue WMA - in Campbell Co; Standifer Gap Marsh - in Hamilton Co.

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EASTERN MOUNTAIN REGION — Temperatures were above normal for each month of the period. Total precipitation was about 3.5 inches above normal for the period.

Grebe - Owl: **Red-necked Grebe**: 16 Mar / 5 Apr (1) South Holston L (JWC / FRC). **Eared Grebe**: 14 Apr (6) South Holston L (JWC), lrs. **Double-crested Cormorant**: 10-11 Apr (100+) South Holston L (JWC, RLK), max. **Great Blue Heron**: 5 Mar (2 active nests) Holston Valley (JWC, Roger Mayhorn, Ed Talbot); 10 May (3 active nests) Chota (CM, TE). **TRICOLORED HERON**: 26-27 Apr (1) South Holston L (JWC, FRC, DAH et al.), third record in NE Tenn. **Green Heron**: mid Apr thru season (colony of 8+ nests) South Holston L (JWC, m.ob.). **Yellow-crowned Night-Heron**: 29 Mar thru season (2+) Elizabethton (HPL, m.ob.). **Northern Pintail**: 5 Mar (6) Paddle Cr., Sullivan Co (JWC, Roger Mayhorn, Ed Talbot). **Green-winged Teal**: 27 Apr (1 male) pond near South Holston L (LCM, RLK), lrs. **White-winged Scoter**: 27 Mar (1) Watauga R., Carter Co (Gary Wallace). **Cooper's Hawk**: 15 Apr (female on nest) Holston Valley (Richard Lewis). **Golden Eagle**: 25 Apr (1) Range, Carter Co (HPL, Glen Eller). **Peregrine Falcon**: 21 Mar (possible nest site on cliff) / 23 Mar (1-2 falcons) Greenbrier Pinnacle, GSMNP (David Morris / Keith Watson, Susan Hoyle, Kris Johnson). **American Woodcock**: 8 Mar (2-3) Hampton Cr. Cove (AJT, DAH, HPL, LCM et al.). **Bonaparte's Gull**: 11 Apr (150+) South Holston L

(RLK), max. **BLACK-LEGGED KITTIWAKE**: 19 Apr (1 ad) South Holston L (LCM et al., photo by Dexter Newman), second record for NE Tenn. & latest date for state. **Caspian Tern**: 20 Apr (4) South Holston L (FRC). **Black-billed Cuckoo**: 28 Apr (1) Holston Valley (Richard Lewis); 4 May (2) Hampton Cr. Cove (Dexter & Linda Newman, DAH); 8 / 15 May (1) Elizabethton (HPL). **Northern Saw-whet Owl**: 8 Mar (1-2) Roan Mtn (AJT, DAH, HPL, LCM et al.); 16 Mar (1 banded) Blount Co (Jim Giocomo).

Flycatcher - Siskin: **Olive-sided Flycatcher**: 27 May (1) Holston Mtn., Sullivan Co (JWC, CJO). **Alder Flycatcher**: 16 May (1) Roan Mtn (RLK), ers; 28 May (1) Hampton Cr. Cove (AJT), relatively low elevation. **Common Raven**: 19 May (1) Viking Mtn (DHM). **Cliff Swallow**: 18 Mar (1 old nest) Shady Valley, at Hwy 421 bridge over Beaverdam Cr. (JWC, CJO), first evidence of breeding there. **Red-breasted Nuthatch**: 10 / 19 May (2) Viking Mtn (DHM). **Blue-gray Gnatcatcher**: 28 Mar (1) Carter Co (BKS), ers; 10 May (52) Chota (CM, TE), max. **Hermit Thrush**: 27 May (1 singing) Mt. LeConte, GSMNP (CM, TE). **Blue-winged Warbler**: 14 Apr (1) Elizabethton (RLK), ers. **Golden-winged Warbler**: 28 May (nest with 3 yg warblers, 1 yg cowbird & 1 warbler egg, plus another nest with 5 warbler eggs) Hampton Cr. Cove (AJT). **Orange-crowned Warbler**: 19 Apr (1) Elizabethton (RLK). **Swainson's Warbler**: 17 Apr (1) Schoolhouse Gap trail, GSMNP (Jean Alexander); 10 May (2) Viking Mtn (DHM). **Kentucky Warbler**: 27 May (1) Mt. LeConte, GSMNP (CM, TE), unusual at that high elevation. **Connecticut Warbler**: 21 May (1) Tremont, GSMNP (CM). **Yellow-breasted Chat**: 10 May (25) Chota (CM, TE), max. **Field Sparrow**: 16 May (1 singing) Carver's Gap, Roan Mtn (RLK), uncommon at high elevation. **Indigo Bunting**: 10 May (104) Chota (CM, TE), max. **Purple Finch**: few reports; 5 Apr (2) Shady Valley (CJO), lrs. **Pine Siskin**: 16 May (1) Roan Mtn (RLK), ers following winter absence.

Locations: Chota - in Monroe Co.; Elizabethton - in Carter Co.; GSMNP - Great Smoky Mountains National Park; Hampton Cr. Cove - near Roan Mtn in Carter Co.; Holston Valley - in Sullivan Co.; Roan Mtn - in Carter Co.; Shady Valley - in Johnson Co.; South Holston L - in Sullivan Co.; Viking Mtn - in Greene Co.

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CONTENTS

STATUS AND DISTRIBUTION OF THE
GOLDEN-WINGED WARBLER IN TENNESSEE
Melinda Welton 61

BREEDING SEASON RECORD FOR THE
MOURNING WARBLER ON ROAN MOUNTAIN
Allan J. Trently 83

THE SPRING SEASON: 1 MARCH - 31 MAY 2003
Richard L. Knight 85

WESTERN COASTAL PLAIN REGION
W. Robert Peeples 86

HIGHLAND RIM AND BASIN REGION
Phillip D. Casteel 88

CUMBERLAND PLATEAU / RIDGE AND VALLEY REGION
Richard L. Knight 91

EASTERN MOUNTAIN REGION
Richard P. Lewis 94